

ENERGY EFFICIENCY DOCUMENTATION

The new Public Works Facility for the City of Forest City will be a pre-engineered metal building measuring approximately 164' in length by 82' in width for a total of 13,400 square feet of building area. The building eave height will be 16' for approximately 80% of the building with the remaining building eave height being 20'. Key building features will include a high efficiency heating system and high R value insulation systems. Personnel doors and windows will be minimized to further increase the energy efficiency of the facility.

The new building will have walls with a minimum insulating value of R-13 and the ceiling will have a minimum insulating value of R-19. The overhead roll up doors will be specified with a minimum insulating value of R-15. There will be three small windows in the office area, two of which will measure 4' x 4' and one of which will measure 2' x 4'. The windows will have a maximum U Value of 0.5.

It should be noted that the existing Public Works Garage is over 50 years in age and was not designed nor constructed with energy efficiency in mind. The new Public Works Facility will be designed to employ the latest building technologies available and as such the insulating and heating characteristics of the proposed building will far exceed those of the existing facility. The fact that the existing garage is over 50 years in age and the fact that the building materials used at that time have less than desirable insulating values, significant savings are anticipated with respect to heating the new Public Works Facility.

The significant savings in heating costs will result from having a single structure which is better insulated and employs a high efficiency tubular infrared heating system. The new heating system is expected to have an efficiency rating of 85% - 92%. Infrared tubular heating systems can save as much as 50% or more in energy consumption compared to most forced air systems such as unit heaters. In comparison to the existing garage and heating system, it is anticipated that the new facility will reduce energy consumption costs by as much as 80%. In addition to its energy efficiency, infrared tubular heating also provides greater creature comfort. The infrared heater emits radiant (infrared) wave energy to the surfaces below. Upon striking surfaces or objects, the energy converts to heat to warm the surrounding air. Infrared heating is a practical and effective way to heat building spaces and to ensure that the heat is where it is needed most, i.e. at the floor level versus suspended at the ceiling level.

In addition to the high efficiency heating system, the new Public Works Facility will also be specified with a low efficiency low bay luminaire (lighting) system designed for these types of industrial / warehouse applications. The proposed lamp and ballast assembly will include a metal halide type lamp with a pulse start ballast with each of the primary fixtures being 400 watts each. The lighting circuits will be configured so as to provide minimal lighting during off use periods as well as full illumination during working periods when illumination to its fullest extent is required. The lighting design will meet the requirements for interior lighting power allowances of 0.8 W/SF or less.

Iowa's current Commercial Building Energy Code is the ASHRAE 90.1-2004 as referenced in the 2006 International Energy Compliance Code (IECC). Buildings that exceed 100,000 cubic feet of conditioned space are required to meet the ASHRAE 90.1-2004 or better standard and must be reviewed and approved by a licensed architect or engineer. The Commercial Building Energy Code applies to this project. However, it should be noted that only the office space, which makes up less than 3% of the total volume of the proposed Public Works Facility, will be fully conditioned space. The majority of the new Public Works Facility will be garage space which will not have any air conditioning and will have a heating system as herein described to maintain an indoor garage temperature of only 48 – 50 F degrees during the heating season.

A letter to the Iowa Finance Authority from the project engineer is enclosed stating that the current Commercial Building Energy Code applies to this project and provides a certification from the Project Engineer that the proposed new Public Works Facility will meet the requirements of the current Commercial Building Energy Code.



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July 28, 2009

Iowa Finance Authority
2015 Grand Avenue
Des Moines, IA 50312

STATE BUILDING ENERGY CODE CERTIFICATION
EXHIBIT 4 - ENERGY EFFICIENCY
IJOBS FUNDING APPLICATION
NEW PUBLIC WORKS FACILITY
CITY OF FOREST CITY

This letter is to certify that the new Forest City Public Works Facility will be designed in a manner which meets all of the requirements of the current Commercial Building Energy Code.

Furthermore, the building will be designed to meet Energy Star requirements for recognition. Since the majority of this new facility is considered to be garage space, identifying a peer group for a building of this nature will be difficult thus making an energy performance rating ineffective.

Sincerely,

VEENSTRA & KIMM, INC.

A blue ink signature of Timothy A. Moreau, written in a cursive style.

Timothy A. Moreau, P.E.
Project Manager